



# SEED STARTING AND TRANSPLANTING

HGA-00032

The use of transplants enables the gardener to mature many warm-season vegetables outdoors, hasten maturity of cool-season vegetables, and achieve a longer season of display for many annual flowers. Based on usual home temperatures (68° F to 72° F) with at least ten hours of daylight, the average number of weeks needed to grow transplants to the proper sizes are indicated below. Subtract the number of weeks listed from the average date of the last spring frost in your locality to determine planting dates. Less favorable growing conditions may require the longer period of time.

## FLOWERS

Flowers marked with an asterisk (\*) do well in cooler temperatures of 50° F to 55° F. The novice will do well to try flowers from this group.

### Six to Eight Weeks

Butterfly-Flower	<i>Schizanthus</i>
English Daisy	<i>Bellis perennis</i>
Feverfew	<i>Chrysanthemum</i> <i>parthenium</i>
Lobelia	<i>Lobelia sp.</i>
Nemesia	<i>Nemesia sp.</i>
Flowering Tobacco	<i>Nicotiana sp.</i>
*Petunia	<i>Petunia hybrida</i>
*Snapdragon	<i>Antirrhinum majus</i>
*Sweet Alyssum	<i>Lobularia maritima</i>
Verbena	<i>Verbena laciniata</i>

### Four to Six Weeks

*African Daisy (Cape Marigold)	<i>Dimorphotheca sp.</i>
*Ageratum (Floss Flower)	<i>Ageratum sp.</i>
Aster	<i>Aster sp.</i>

### Four to Six Weeks – continued

Godetia	<i>Godetia sp.</i>
*Larkspur	<i>Delphinium brownii</i>
*Nasturtium	<i>Tropaeolum majus</i>
Stocks	<i>Matthiola sp.</i>
*Bachelor Button	<i>Centaurea cyaneus</i>
*Candytuff	<i>Iberis sempervirens</i>
*Clarkia	<i>Clarkia pulchella</i>
Dahlia	<i>Dahlia pinnata</i>
*Marigold	<i>Tagetes erecta</i>
*Phlox	<i>Phlox sp.</i>
Zinnia	<i>Zinnia elegans</i>

### Four Weeks in Individual Containers

Canary Bird Vine	<i>Tropaeolum peregrinum</i>
Mignonette	<i>Reseda odorata</i>
*Nemophila	<i>Nemophila sp.</i>
Sunflower	<i>Helianthus annuus</i>

## VEGETABLES

Vegetable	Weeks	Remarks	Vegetable	Weeks	Remarks
Broccoli	4-6		Peppers	6-7	
Cabbage	4-6		Winter Squash	3-4	Start three seeds in individual containers and remove the weaker one after they germinate. Plant directly from pots.
Cauliflower	4-6				
Celery	10-12	Slow growing.			
Cucumbers	3	Start two seeds in individual containers and remove the weaker one after they germinate.	Tomatoes	7-9	Transplant when near bloom. Do not subject to frost.
Lettuce (Head)	4-6	Start inside for early harvest.			

## MATERIAL NEEDED FOR STARTING TRANSPLANTS

### Container

Almost any type of container can be used as long as it has adequate drainage and will last for up to three months when damp. Some possible choices include wood flats, plant pots, peat pots, peat pellets, tin cans, milk cartons, foil pie plates, plastic freezer cartons, etc.

### Germinating Media

Although soil and potting mixtures may be used, they are **NOT** necessary to insure germination. Vermiculite, sphagnum moss, sand, perlite or other **STERILE** material that can be kept uniformly moist is satisfactory. If a soil mixture is used, moisten and bake in the oven to sterilize (one-half hour at 180° F is sufficient). Sterilized media is required to prevent "damping off" disease from killing seedlings. Fill containers to

within one-half inch of the top. Seedling surface should be firm but not hard to provide good contact between soil and seed. All containers, tools, and the working area must be clean and sterile also to prevent reinfection. Wood and plastic can be sterilized with a mixture of one part chlorine bleach to nine parts water. Clean containers first and let stand in bleach solution for 30 minutes. Dry before re-use.

### Seed Treatments

Many seeds from commercial sources are already treated with fungicides to prevent "damping off." If they are not or if they are home-grown seeds, they should be treated. Contact your local district Extension office for recommendations on seed treating.

## SEEDING AND GROWING TRANSPLANTS

### Seeding

Space or scatter seeds well apart. Nearly everyone plants many more seeds than can grow for even a short time. Plant in rows if more than one type of seed is used.

### Covering Seeds

Cover very lightly. Fine seeds need no cover at all if kept moist. If covered, the surface should be firmed to insure good seed-soil contact. Cover should be to a depth of two times the seed diameter. Lettuce and celery seeds require light for germination.

### Watering

Water seeds gently but thoroughly. Fog or mist is ideal to keep the surface moist. The container can also be put in a pan of water to absorb moisture from the base, which helps to avoid damping off by keeping the surface dry.

### Covering the Container

Glass or plastic may be used to keep seeds moist. An old newspaper may be used until the seeds germinate.

### Heat

Place in an area where the temperature is about 70° F. Heat at the bottom of the container hastens seed germination. Avoid placing covered containers in direct sunlight. A few plants such as larkspur, snapdragon, sweet pea, cabbage, broccoli, and cauliflower start best at about 55° F.

### After Germination

New seedlings need light and fresh air. Remove newspapers, glass or plastic covers as soon as seedlings appear. If not all seeds germinate at the same time, keep ungerminated rows covered until seedlings appear. Strips of newspaper work well for this.

### “Damping Off”

This is the major problem to watch for with new seedlings. Poor air circulation and/or crowded plants create ideal conditions for “damping off.” Increase air circulation and thin the plants at the first sign of trouble. Plants should have circulation of air at the soil surface. A fungicide may be required if the disease is extensive. Excessive heat and humidity and insufficient light also create conditions favorable for damping off. Treated seeds may also be available to prevent this problem.

### Transplanting

Transplant seedlings to individual containers or flats filled with sterilized garden soil as soon as the first true leaves appear. In flats, space seedlings on centers at least two inches by two inches. Larger growing plants should be placed in individual containers. Handle plants gently by the upper leaves. Use a pointed stick (dibble) to roll out or “prick off” the seedlings. **DO NOT PULL THE PLANTS.** Avoid tearing the roots and replant at the same depth as the plant was growing in the seed flat.

## SETTING PLANTS OUT IN THE GARDEN OR YARD

### “Hardening Off” Plants

Before transplanting outdoors plants should be “hardened off.” Withhold water and carry them outside for progressively longer periods of time each day. As plants start to “harden off,” they may become slightly yellow with tinges of red at the edges of the leaves. Allow a week or more for this process. A cold frame works well for this procedure. Avoid wind or temperature below 45° F. This transition period is important in harsh climates.

### Starter Solution

Use a starter solution when transplanting to get plants off to a good start in their new environment. Follow mixing directions on the container carefully. Use one-half to one cup of solution per plant. A good solution is one tablespoon of high phosphorus water soluble fertilizer in one gallon of water.



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